

WHAT IS CLAIMED IS:

1. A folding knife comprising:

a handle, the handle including a notch on an upper edge
5 thereof;

a blade attached to the handle, the blade being
pivotally movable about a pivot axis provided in the handle,
the blade being movable between a folded position in which
the blade is received within the handle and an open position
10 in which the blade extends out of the handle, the blade
including a tang positioned in the handle when the blade is
in the open position;

a cam surface provided on a peripheral edge of the
tang, the cam surface including a substantially arcuate
15 guiding portion extending about the pivot axis and an
engaging portion extending continuously from one end of the
guiding portion;

a guide member fixed to the handle in the notch, the
guide member having a guiding axis extending in a
20 longitudinal direction of the handle;

a tubular lock member supported on the guide member and
being movable along the guiding axis with respect to the
guide member, the lock member including an axis extending
along the guiding axis, the lock member being movable
25 between a lock position in which the lock member engages the
engaging portion to lock the blade in the open position and
an unlock position in which the lock member is separated
from the engaging portion to allow the blade to move from
the open position; and

30 a bias member for biasing the lock member in the
direction from the unlock position toward the lock position,
the bias member acting to move the lock member toward the
lock position so as to lock the blade with respect to the

handle when the blade is in the open position.

2. The folding knife as claimed in claim 1, wherein the
guide member, the lock member, and the bias member are
5 assembled to form a single unit.

3. The folding knife as claimed in claim 1, wherein the
lock member is rotatable about the guiding axis with respect
to the guide member.

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4. The folding knife as claimed in claim 1, wherein the
guide member includes a cylindrical support positioned in
the notch and having the guiding axis, and the lock member
has a hollow cylinder shape and is arranged encompassing the
15 support.

5. The folding knife as claimed in claim 4, wherein the
bias member is a coil spring, and the coil spring is
accommodated in the lock member and arranged around the
20 support.

6. The folding knife as claimed in claim 5, wherein the
support has an axial end from which a spring seat extends
radially outward, and the lock member has an axial end from
25 which a spring seat extends radially inward, the two ends of
the coil spring being received by the spring seats,
respectively.

7. The folding knife as claimed in claim 4, wherein the
30 guide member includes front and rear attachments extending
from the two axial ends of the support, the attachments
being fixed to the handle.

8. The folding knife as claimed in claim 7, wherein the handle has a pair of sidewalls, a receiving groove for receiving the blade is formed between the two sidewalls, and the front and rear attachments are held between the two
5 sidewalls.

9. The folding knife as claimed in claim 8, wherein the front attachment engages the blade in the open position and prevents the blade from pivoting further beyond the open
10 position.

10. The folding knife as claimed in claim 1, wherein the engaging portion is a first engaging portion extending continuously from one end of the guiding portion, the cam
15 surface further includes a second engaging portion provided on the other end of the guiding portion, and the bias member biases the lock member so as to engage the lock member with the second engaging portion when the blade is in the folded position to hold the blade in the folded position.

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11. The folding knife as claimed in claim 1, wherein the lock member has a diameter greater than the thickness of the handle.

25 12. A folding knife comprising:

a handle with a pair of sidewalls, the handle including a distal portion, a basal portion, and an upper edge extending between the distal portion and the basal portion, wherein a notch is formed near the distal portion in the
30 upper edge;

a blade shaft attached to the distal portion of the handle, the blade shaft having an axis that transverses the handle;

a blade arranged between the two sidewalls and supported by the blade shaft pivotal to the handle, the blade being movable between a folded position in which the blade is received within the handle and an open position in which the blade extends out of the handle, the blade including a tang positioned in the handle when the blade is in the open position;

a cam surface provided on a peripheral edge of the tang, the cam surface including a substantially arcuate guiding portion extending about the axis of the blade shaft and an engaging portion extending continuously from one end of the guiding portion; and

a locking mechanism, the locking mechanism including:

a guide member fixed to the handle in the notch, the guide member having a guiding axis extending in a longitudinal direction of the handle, the guiding axis being orthogonal to the axis of the blade shaft;

a hollow lock tube supported on the guide member and being movable along the guiding axis with respect to the guide member, the lock tube including a cylindrical outer surface having an axis extending along the guiding axis, the lock tube being movable between a lock position in which the lock tube engages the engaging portion to lock the blade in the open position and an unlock position in which the lock tube is separated from the engaging portion to allow the blade to move from the open position, the lock tube being allowed to move between the lock position and the unlock position when the blade is in the open position, and the blade being allowed to move between the open position and the folded position, with the guiding portion facing the lock tube, when the lock tube is in the unlock position; and

a coil spring received in the lock tube and arranged around the guide member, the coil spring biasing the lock tube in the direction from the unlock position toward the lock position, and the coil spring moving the lock tube toward the lock position to lock the blade to the handle when the blade is in the open position.

13. The folding knife as claimed in claim 12, wherein the locking mechanism forms a single unit.

14. The folding knife as claimed in claim 12, wherein the lock tube is rotatable about the guiding axis with respect to the guide member.

15. The folding knife as claimed in claim 12, wherein the guide member includes a cylindrical support positioned in the notch and having the guiding axis, and the lock tube is arranged encompassing the support.

16. The folding knife as claimed in claim 15, wherein the support has an axial end from which a spring seat extends radially outward, and the lock tube has an axial end from which a spring seat extends radially inward, the two ends of the coil spring being received by the spring seats, respectively.

17. The folding knife as claimed in claim 15, wherein the guide member includes front and rear attachments extending from the two axial ends of the support, the front and rear attachments being held between the sidewalls of the handle.

18. The folding knife as claimed in claim 17, wherein the

front attachment engages the blade in the open position and prevents the blade from pivoting further beyond the open position.

5 19. The folding knife as claimed in claim 12, wherein the engaging portion is a first engaging portion extending continuously from one end of the guiding portion, the cam surface further includes a second engaging portion provided on the other end of the guiding portion, and the coil spring
10 biases the lock tube so as to engage the lock tube with the second engaging portion when the blade is in the folded position to hold the blade in the folded position.

20. The folding knife as claimed in claim 12, wherein the
15 outer surface of the lock tube has a diameter greater than the thickness of the handle.